

National Academies' Review of the NIOSH Construction Research Program:

CPWR Construction Center

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WORKPLACE SAFETY AND HEALTH

Background on CPWR



WORKPLACE SAFETY AND HEALTH

What is CPWR?

- Non-profit organization established by the Building and Construction Trades Department, AFL-CIO
- Focuses on workforce development
- Activity areas: Research, training and service
- Special focus on safety and health
- 17 million annual budget
- National consortium with over 50 organizations
- Recognized world-wide

Our Mission: To Advance the Construction Industry

- Conduct research
- Publicize results
- Encourage the elimination or reduction of safety or health hazards
- Provide training resources and technical services

CPWR's Constituencies

- Construction workers and their families
- Construction unions
- Construction employers and their organizations
- Construction owners/users
- Construction professionals
- Safety and health specialists

Direct Access To UNIONS

15 International/National Construction Unions

320 Building Trades Councils

4,225 Local Construction Unions

EMPLOYERS

7 National Contractor Associations

20,000 Contractors

UNIONS/EMPLOYERS

1,650 Joint Industry Training Centers/Funds



Oversight

- **Corporate Board**
 - ◆ Sets policy
- **Technical Advisory Board**
 - ◆ Reviews quality
- **Institutional Review Board**
 - ◆ Monitors ethics
- **Project-Specific Advisory Groups**
 - ◆ Provide guidance

CPWR Program Areas: Designed for Synergy



Construction Center Organization



Construction Center Funding

- \$5 Million annually since 1995
- 50% of total funding to support network of collaborating organizations

CPWR's National Consortium

- Safety and health research networks
- Construction economics research network
- Training networks
- Medical screening network



KEY:

- Research
- Training
- Screening



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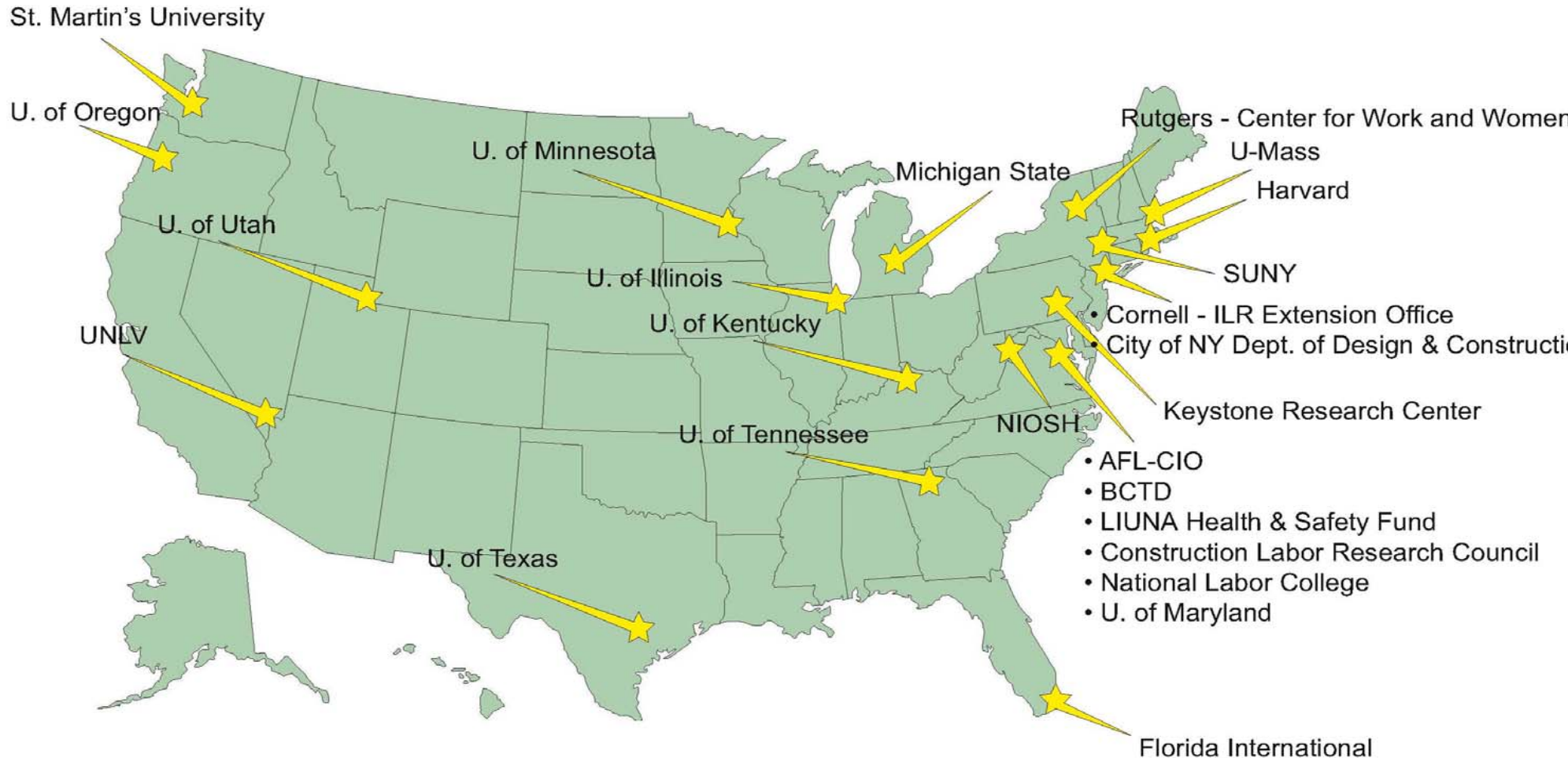
CDC

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CPWR - Construction Economics Research Network

Location of Core Members





CPWR Medical Clinics



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History



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History of CPWR Activities

- 1990 - 1994

Define the problem and set a research agenda

- 1995 - 1999

Define best practices for the industry

- 2000 - 2004

Practical research and dissemination of findings

- 2005

Identify targeted research and dissemination

Highlights of Program Activities

- **1991:** Technical Advisory Board
- **1993:** Small Studies Grant Program
- **1993:** International Roundtable on Construction Safety and Health
- **1994:** Task-based Exposure Assessment Method (TBEAM)
- **1994:** Construction Economics Research Network
- **1995:** Ergonomics special emphasis
- **1995:** Independent contractors problem defined
- **1996:** Standardized safety and health hazard awareness training program for construction workers (Smart Mark).
- **1997:** Regional safety & health organizations created in WA, MA
- **2000:** eLCOSH (www.elcosh.org) launched
- **2003:** Surveillance identifies a surge in Hispanic employment

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Approach



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State of Scientific Knowledge

Outcome	Basic ⇒ ⇒ ⇒ ⇒ ⇒ Science ⇒ ⇒ ⇒ ⇒ ⇒ Applied			
	Characterization**	Surveillance	Intervention	Translation
Trauma	Well defined	Fatalities good Injuries uncertain	Well defined	SMEs weak
MSD*	Moderately defined	Poor	Moderately defined	Large R2P gap
Health	Intermittent Some (e.g. asbestos; noise) well defined Others (e.g., solvents) poorly defined	Poor	Intermittent Some (lung, hearing loss) well defined Others (e.g., neurological) poorly defined	SMEs poor Industry wide solutions needed

*Musculoskeletal disorders

**Hazard/exposure characterization

Roles of NIOSH Intramural and CPWR Construction Center

Outcome	NIOSH ⇒ ⇒ ⇒ ⇒ <i>Responsibility</i> ⇒ ⇒ ⇒ ⇒ CPWR			
	Characterization* *	Surveillance	Intervention	Translation
Trauma	NIOSH/CPWR	CPWR/NIOSH	CPWR/NIOSH	CPWR/NIOSH
MSD*	NIOSH/CPWR	NIOSH/CPWR	NIOSH/CPWR	CPWR/NIOSH
Health	CPWR/NIOSH	NIOSH/CPWR	NIOSH/CPWR	CPWR/NIOSH

Primary role in **bold**

*Musculoskeletal disorders

**Hazard/exposure characterization



CPWR Strategic Goals for 2005-2010

- 1. Continue the collection and analysis of surveillance data.**
- 2. Develop and implement risk reduction interventions.**
- 3. Provide training.**
- 4. Evaluate the impact of interventions.**
- 5. Promote strategies to diffuse information.**
- 6. Conduct policy and economic studies.**

Emphasis Areas

- **Outcome Emphasis Areas**
 - ◆ Traumatic Injuries/Fatalities
 - ◆ Work-related Musculoskeletal Disorders (WMD)
 - ◆ Toxic Risks/Illnesses
- **Cross-cutting Emphasis Areas**
 - ◆ Surveillance
 - ◆ Training
 - ◆ Evaluation
 - ◆ Diffusion/Translation/R2P
- **Special Emphasis Areas**
 - ◆ Measures of Costs and Savings from Prevention
 - ◆ Special Populations: Immigrants; Impaired or Disabled Workers
 - ◆ Industry-wide Practices; Institutional and Policy Changes
 - ◆ International Activities

Development of 2004 Application

- A detailed review of the available national data to identify the greatest problems.
- 21 stakeholder meetings/600 participants.
- An analysis of all NIOSH and CPWR intramural and extramural activities to identify areas of cooperation and “gaps” that have not been addressed by research.
- A national search to find the best possible collaborators which resulted in:
 - ◆ >100 concepts submitted
 - ◆ Two dozen accepted for submission as full proposals, and
 - ◆ From these 16 projects included in the final application.

Construction Center Consortium

Over 30 organizations including:

University of Massachusetts/Lowell

Harvard University

Hunter College

Duke University

University of California, San Francisco

Florida International University

University of Washington/St. Louis

University of Iowa

Oregon University

Colorado State University

University of Illinois

Rutgers University

University of Washington

University of Tennessee

Research Program Projects 2005-2010

Exploratory

Small Studies

Safety and Health Surveillance

Exposure Matrix/Assessment/Solutions

Tools/Programs for Health

Engineering Controls

Health Certification Program

Hispanic Construction Workers

COPD

DOE CAIRS Data



Research Program Projects 2005-2010

Intervention/Prevention

Electrical Inspection

Masonry Ergonomics Best Practices

Ladders

Nail Gun

Hispanic Training

Overhead Drilling

Silica

Noise Prevention

Fall Prevention

Safety Practices & Immigrant Workers

Safer Engineering & Approaches for Lifts and Cranes



Research Program Projects 2005-2010

Translation

Leading Edge

Communications

Ergonomics Diffusion

Barriers to Training

Training Evaluation



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Outputs and Transfers



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Highlights of Outputs

- 1993:** First National Conference on Construction Safety and Health establishes industry consensus on an *Agenda for Change*.
- 1994:** Regional construction safety and health conferences: Boston, Atlanta, Cincinnati, and Seattle.
- 1995:** Performance Benchmarks for the Construction industry
- 1995:** Second National Conference on Construction Safety and Health
- 1995:** A series of overview articles on the construction industry and its safety and health needs in the scientific literature; the first reference guide for health and safety professionals (STAR Book).
- 2000-2007:** eLCOSH (www.elcosh.org) use increases to over 40,000 hits/week
- 2003:** Surveillance identifies a surge in Hispanic employment
- 2007:** Solutions Data Base
- 2007:** Don't Fall For It

Contribution of Consortium to Published Literature 1990-2003

- Total number of publications 1990-2003: **18%**
- Total number of publications 2000-2003: **23%**
- Studies on ergonomic hazards and controls: **50%**
- Studies on health hazards and controls: **17%**
- Studies on silica: **38%**
- Studies reporting on development of interventions or exposure assessment methods: **50%**
- Intervention studies with a reported outcome: **23%**

➤ Source: CPWR Analysis of PubMed



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Outcomes

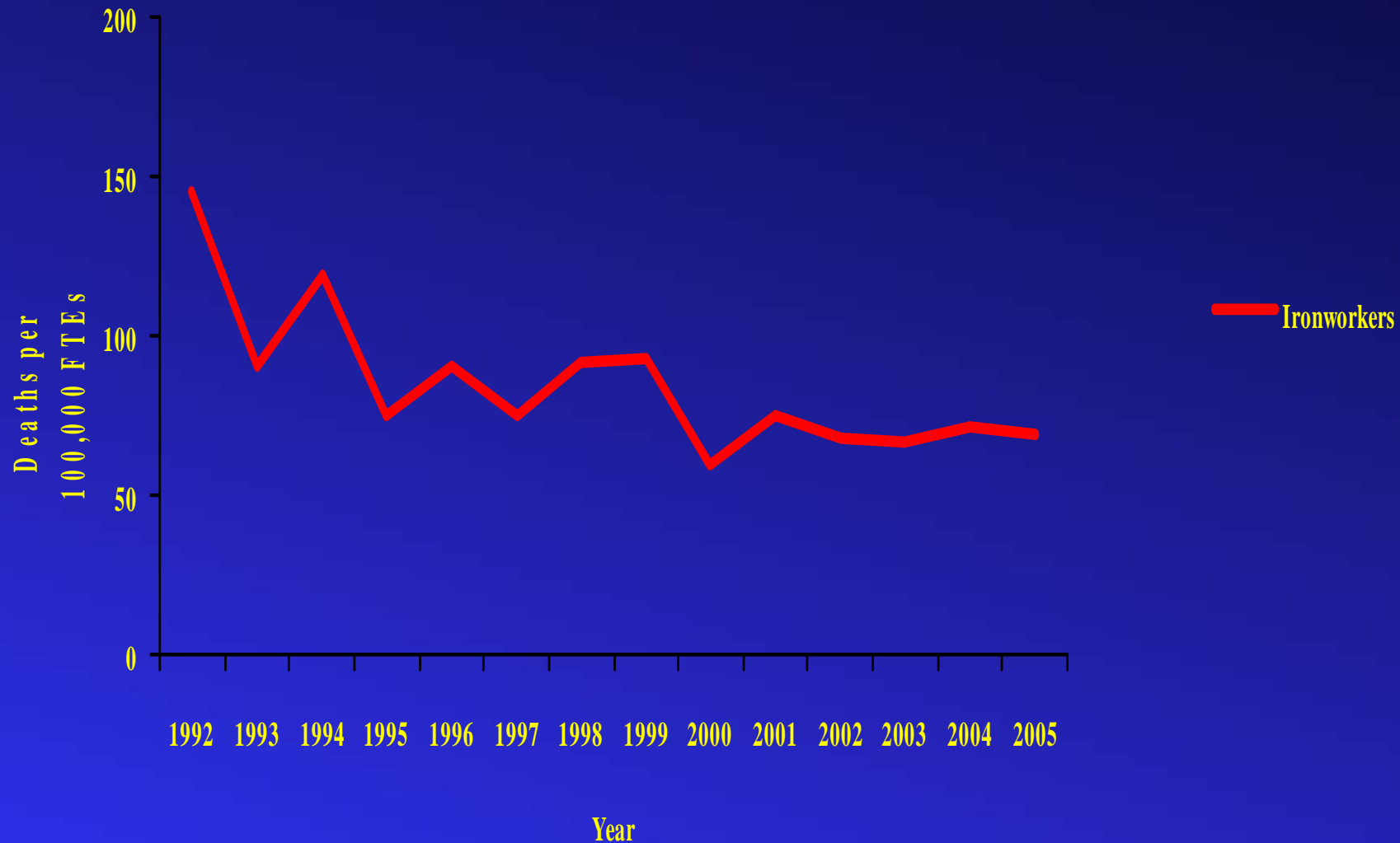


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Highlights of Outcomes

- Smart Mark training reaches over 50,000 workers/year
- Model Lead Contract Specifications
- *The Construction Chart Book* is published (2nd ed 1998; 3rd ed 2002).
- Hazard Alert Cards

Long-term Emphasis Area: High Risk Fatality Rates



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What's Ahead



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Areas with Great Promise

- **Special populations**
 - ◆ More Spanish language materials
 - ◆ More outreach to day laborers
 - ◆ More non-verbal communications (labels, signs, etc)
- **Small-Medium Sized Employers**
 - ◆ Apply social marketing methods
 - ◆ Tie-in with suppliers, manufacturers (e.g., tools) and distributors (e.g., equipment rental; big box retailers)
- **Design for Safety**
 - ◆ Tie-in with Green construction (e.g. LEED)